RUST GEOTECH INC.

Spectral Gamma-Ray Borehole
Log Data Report

Borehole 51-12-11

Log Event A

Borehole Information

Farm : TX	**Tank :** TX-112	**Site Number :** 299-W15-111
N-Coord : 41,900	**W-Coord :** 76,080	**TOC Elevation :** 667.95
Water Level, ft :	**Date Drilled :** 9/30/1970	

Casing Record

Type : Steel-welded	Thickness : 0.280	ID, in. : 6
Top Depth, ft. : 0	Bottom Depth, ft. : 100	

Borehole Notes:
According to the driller's records, this borehole was not perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of published thickness for schedule-40, 6-in. steel tubing.

Equipment Information

Logging System : 2	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 10/1995	**Calibration Reference :** GJPO-HAN-3	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number : 1	**Log Run Date :** 4/16/1996	**Logging Engineer:** Kim Benham
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 86.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 2	**Log Run Date :** 4/17/1996	**Logging Engineer:** Kim Benham
Start Depth, ft.: 96.5	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 85.5	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 3	**Log Run Date :** 4/17/1996	**Logging Engineer:** Kim Benham
Start Depth, ft.: 10.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 0.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : S.D. Barry

Data Processing Reference : P-GJPO-1787 Analysis Date : 12/9/1996

Analysis Notes :

This borehole was logged in two log runs with one rerun for quality assurance purposes. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The only man-made radionuclide detected in this borehole was Cs-137. The Cs-137 concentrations were measured almost continuously from the ground surface to about 13 ft and intermittently to the bottom of the borehole. The maximum Cs-137 concentration was 9.3 pCi/g at 2 ft.

K-40 concentrations increase at 47 ft.

The interval between 0 and 10 ft was relogged to check the quality of the radionuclide concentration measurements made by the SGLS. The concentrations of the man-made and natural radionuclides were calculated using the separate data sets at the overlapping depths. The concentrations of these radionuclides were within the statistical uncertainty of the measurements, verifying the excellent repeatability of the radionuclide concentration measurements.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank TX-112.

Log Plot Notes:

Separate log plots show the man-made (Cs-137) and the naturally occurring radionuclides (KUT). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A rerun plot was generated for the region between 0 and 10 ft. The radionuclide concentrations shown were calculated using the separate data sets provided by the original and rerun logging runs.